

Docket No. X-13168

### REMARKS/ARGUMENTS

Claims 2-27 are pending in the present application. The rejection of Claims 13-24 under 35 U.S.C. § 112, second paragraph, is maintained for the reasons of record set forth in the Office Action dated September 27, 2002. The indicated allowability of Claims 2-10, 12 and 25-27 has been withdrawn. Claims 12 and 26 are now rejected under 35 U.S.C. 102(b) as being anticipated by Heijenoort et al. (of record). In response, Applicants hereby cancel Claims 12 and 26. Claims 2-10, 12 and 26 are now rejected under 35 U.S.C. 103(a) as being unpatentable over Heijenoort et al. Claims 25-27 are now rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In view of the reasons set forth below, it is submitted that these rejections are improper and should be withdrawn.

Reconsideration and reexamination of the present application in view of the amendments and remarks presented herein is respectfully requested.

### *Claim Rejections-35 USC §112*

Claims 13-24 are rejected under 35 USC §112, second paragraph, because "the claims do not set forth the material/composition from which Lipid II will be isolated, how said material is to be manipulated, nor does it set forth a final step in which Lipid II is in hand in an isolated form." In response, Applicants have amended Claims 13-24 to remove any perceived indefiniteness. Since Applicants believe that these amendments place the claims in condition for allowance, withdrawal of the present rejection is believed to be in order and such action is respectfully requested.

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***Claim Rejections-35 USC §112***

Claims 25-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Office Action asserts that one of ordinary skill in the art would not be appraised of whether "P" is phosphorous or the intended variable.

In response, Applicants maintain that there is no ambiguity in the use of the variable "P" in claims 25-27. Claims 25 and 27 expressly recite: "*P attached to the carbonyl* is a residue of an amino acid or peptide." (emphasis added) Since there is no more than one instance of a "P attached to a carbonyl" in any of the molecular formulas recited in the claims, the term cannot have multiple meanings. As such, Applicants respectfully assert that the rejection is improper and should be withdrawn.

***Claim Rejections-35 USC §102***

Claims 12 and 26 are rejected under 102(b) as being anticipated by Heijenoort. In response, Applicants hereby cancel claims 12 and 26.

***Claim Rejections-35 USC §103(a)***

Claims 2-10, 12 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heijenoort. Applicants assert that this rejection is improper because it has not been appreciated that the process for preparing Lipids II of to the present invention leads to significant advantages over prior methods.

The isolation of lipid II from bacterial membrane sources described in Heijenoort is based on improvements to the original method of Strominger (Umbreit et al. (1972) J.

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Bacteriol. 112:1306. The most recent update/improvement to this general method is described in Sahl (Brotz et al. (1998) Antimicrob. Agents Chemother. 42:154).

Bacterial membrane preparations contain many higher prenyl (including, but not limited to, undecaprenyl) lipid phosphates, as these materials are found in many of the bacterial biosynthetic systems. The moieties attached to the prenyl phosphates are minor perturbations of the stationary phase binding properties among similar molecules. These closely related lipid pyrophosphates and are not entirely separable from one another. For example, the atomic mass and virtually all of the lipophilic character of lipid II is accounted for by pyrophosphorylundecaprenol. Thus, although the most recent (i.e., Sahl, 1998 supra) reference demonstrates that all of the radiolabeled material in the final preparation is lipid II, phosphate analysis indicates that the material is actually a mixture of lipid phosphates. In contrast, the lipids II described in the present application are isolated from successively purified, totally synthetic intermediates with homogeneous undecaprenyl phosphate applied in the final step. As such, a much higher level of Lipid II purity is attainable relative to reported methods. Since the levels of purity according to the present invention are not enabled by the prior art methods, they cannot be obvious.

In addition, one of the stated utilities of Lipids II in the present application involves their use in diagnostic tests (e.g., quantitation of lysozyme). Impure reagents prepared according to the prior art methods are inferior for use in such analytical tests, where reagent purity is a requisite for achieving meaningful and reproducible results. A pure product has been held patentable where the prior art form was not suited for the utility of the claimed product. *Farbenfabriken of Elberfeld Co. v. Kuehmsted* (CA 7

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1910) 171 F 887, aff'd, 179 F 701; *Binney & Smith Co. v. United Carbon Co. et al.* (CA 4 1942) 125 F2d 255, 52 USPQ 205; *Ex Parte Parke et al.* (POBA 1944) 64 USPQ 335.

In short, Applicants have solved a long-standing problem in the art (i.e., obtaining highly purified Lipids II) and are entitled to a patent based on their discovery. As such, Applicants respectfully submit that the rejection is improper and should be withdrawn.

#### OVERALL SUMMARY AND CONCLUSIONS

In view of the foregoing amendments and remarks, Applicants respectfully submit that claims set forth an invention that is new, useful, and unobvious, and which is therefore deserving of patent protection. Passage to Issue of the present application is believed to be in order, and is respectfully requested.

Please charge any fees or credit any overpayment in connection with this application which may be required by this or any related paper to Deposit Account No. 05-0840.

If the Examiner has any questions, or would like to discuss any matters in connection with this application, he or she is invited to contact the undersigned at (317) 276-0307.

Respectfully submitted,



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